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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/030,710	02/25/1998	PETER C. CHEN	M-3206-1C	7700

7590 06/04/2003

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[REDACTED] EXAMINER

DINH, DUNG C

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2153
DATE MAILED: 06/04/2003

31

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/030,710	CHEN, PETER C.	
	Examiner Dung Dinh	Art Unit 2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 March 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-4,6-10,17-19,21-28,30-35 and 38-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4,6-10,17-19,21-28,30-35 and 38-45 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____ .
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 23.
- 4) Interview Summary (PTO-413) Paper No(s). _____ .
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____ .

Art Unit: 2153

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24, 33, and 43 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "non-standard input/output interface" is indefinite. It is unclear what is included or excluded from the term. It is unclear what interface would constitute as a standard interface and what interface would constitute as non-standard interface.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject

Art Unit: 2153

matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2; 4, 6-9; 17-18, 23; 19, 21-22; 24-28; 30-32, 33, 35, 38-42, 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suffern et al. US patent 5,646,983 and further in view of Bailey et al. US patent 5,644,593.

As per claim 1, Suffern teaches a system comprising:

a computer having a processing unit [fig.3 Microprocessor 22], a main memory [24] and a local bus [28];
a device [fig.3 interface card 15] coupled to the local bus, wherein the device occupies an I/O slot on the local bus [col.3 lines 25-30] and is accessible at a first set of addresses corresponding to a first communication port [apparent from col. 8 lines 15-18, since the device occupies addresses of one of the COM ports];

the device has a register set [fig.3 counter 70, control unit 50, latch 74,80,54 and shift register 43] different than a register set for a UART [apparent since the device does not have convention processing and interface of a standard modem].

Suffern does not teach a communication driver with UART emulation as claimed. Suffern only discloses sample codes for interfacing to the device 15 and how to perform the DSP function using the computer's processor. Suffern does not disclose how to

Art Unit: 2153

interface the device 15 such that the device 15 can be used by conventional application software and operating system.

Bailey discloses a method for enabling application software to communicate with a modem, connected in a non-standard way, by providing a device driver with UART (serial interface) emulation and redirecting the communication between the operation system and the modem [see col. 5 lines 29-31, col.13 lines 5-10, col.16 lines 24-36]. The UART emulation fools application sofware and operating system to see the modem as if it is connected to a conventional port [col.5 lines 45-48].

Hence, it would have been obvious for one of ordinary skill in the art to provide a communication driver with an UART emulation and communication redirection with Suffern device 15 because it would have enabled the communication driver to fool the application sofware and operating system into seeing the device 15 like a conventional modem. This would have enabled the device 15 of Suffern to be used by existing application software and operating system.

As per claim 2, it is inherent that the local bus comprises an ISA bus since Suffern uses an IBM-compatible personal computer.

As per claim 4, 7-8, they are rejected under similar rationale as for claim 1 above. Bailey teaches allocating memory of the computer for storing data corresponds to registers of a

Art Unit: 2153

UART, transmitting and updating value in the storage locations [col.16 lines 23-36].

As per claim 6, it is apparent that the system as modified would have to have I/O handler for transferring data to/from the driver to the appropriate registers in the device 15 in order for the driver to communicate and transfer data between the computer and the device 15.

As per claim 9, it is apparent that the device 15 of Suffern is allocated a base address corresponding an I/O slot for a UART [col. 8 lines 15-18, since the device occupies addresses of one of the COM ports].

As per claim 17, it is rejected under similar rationale as for claim 1 above.

As per claim 18, it is apparent from Bailey col.16 lines 23-35 that the serial port emulation would function the same way whether the access to the UART register is done directly by application software or by the operating system.

As per claims 19, it is rejected under similar rationale as for claims 1. Bailey teaches allocating memory of the computer for storing data corresponds to registers of a UART, transmitting and updating value in the storage locations [col.16 lines 23-36].

As per claims 21, Suffern teaches modem software that implements a conversion between data and digital samples

Art Unit: 2153

representing a signal in accordance with a communication protocol [col.3 lines 45-68].

As per claims 22 and 23, Bailey does not disclose the specific registers being emulated. However the recited registers: line control, status, and modem control are standard in a PC serial interface. Hence, it is apparent that the system as modified would have had emulated these registers in order to provide full compatibility to existing application software.

As per claims 24, and 30 Suffern teaches a device comprising an analog to digital converter coupable to a communication medium to receive an analog communication signal [fig.3, fig.4: device 15];

a computer comprising processing unit coupled to the device, to receive there from a plurality of sampled digital values, the processing unit being program with a software modem to determine data received, based on a waveform represented by the sample digital values [fig.4 Host computer 20, col.2 lines 6-10].

Suffern does not specifically disclose a device driver for transferring data between the device 15 and an operating system and enabling application software to use the device 15 in the same manner as a standard hardware modem. Bailey teaches a device driver that fools the operating system and application software to

Art Unit: 2153

see a conventional modem. The obviousness rationale to combine Bailey's driver to Suffern device is as stated for claim 1 above.

As per claim 25, Bailey teaches allocating memory for registers of the emulated UART [col.16 lines 23-36].

As per claim 26, Suffern teaches modem software that implements a conversion between data and digital samples representing a signal in accordance with a communication protocol [col.3 lines 45-68].

As per claim 27, it is well known in the art that a device driver has I/O handler for transferring data from a device hardware register to the computer memory. It is apparent that Suffern as modified would have such an I/O handler in order to transfer data between the device 15 and the computer.

As per claim 28, Suffern teaches analog-to-digital and digital-to-analog converters [see fig.4].

As per claim 31, Suffern teaches using interrupts to reads and transfer data to the adapter card [see col.7 lines 1-10, col.8 lines 15-18].

As per claim 32, it is inherent that the data sent by the software modem to the adapter 15 would have carrier signal and data format according to a standard modem protocol in order to the device 15 of Suffern to function as a modem.

Art Unit: 2153

As per claims 33 and 43, Suffern teaches a system essentially as claimed having an I/O device with non-standard interface (modem without a processor and DSP) and a computer processing unit using software to process digital wave signal data from the device which is coupled to the local bus [col.3 lines 45-68]. Suffern does not specifically disclose driver for providing data to an operating system. It is well known in the art to provide a device driver to enable an operating system to communicate to an I/O device. The obviousness rationale is as stated for claim 1 above.

As per claims 35 and 44, Suffern teaches generating digital values and transmitting analog signal using digital-to-analog converter on the device [col.3 lines 60-68].

As per claim 38, it is rejected under similar rationale as for claim 1 above. Suffern teaches using the computer processor to perform modem DSP functions. Hence, Suffern as modified would have "software modem" for performing the modem DSP functions. It is well known in the art that a device driver has I/O handler for transferring data from a device hardware register into the computer. It is apparent that the device driver of Suffern as modified would have an I/O handler in order to transfer data signal from the device 15 and the "software modem" so that the software can perform modem DSP functions on the data signal.

Art Unit: 2153

As per claims 39-42 and 45, it is apparent that the computer of Suffern has a second device with UART (it is well known in the art that the PC has two standard serial ports COM1 and COM2 each having a separate UART). The limitations recited are inherent in the computer of Suffern's system as modified.

Claims 3, 10, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Suffern et al. and Bailey and further in view of Gibson et al. US patent 5,640,594.

As per claim 3, Suffern does not specifically disclose a means in the device for assigning a base I/O address to be occupied by the device.

Gibson teaches a device couple to a local bus comprising:
a comparator [fig.4A #312];
a pattern generator [fig.4A SEQ(count)] coupled to the comparator;
a counter [fig.4A COUNT] operable couple to the comparator and the pattern generator;
a register [fig.4B #324 accept data for device programming]
coupled to the counter to receive signal from the local bus in respond to the counter reaching a final state [fig.4A #316].

It would have been obvious for one of ordinary skill in the art to provide the means above in the modem device of Ramaswamy

Art Unit: 2153

because it would have enable the operating system to automatically assign I/O address to the device.

As per claims 10 and 34, it is rejected under similar rationale as for claim 3 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Dinh whose telephone number is (703) 305-9655. The examiner can normally be reached on Monday-Thursday from 7:00 AM - 4:30 PM. The examiner can also be reached on alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached at (703) 305-4792.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2100 Customer Service whose telephone number is (703) 306-5631.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, DC 20231

or faxed to:

(703) 746-7239, (for formal communications intended for entry)
(703) 746-7240 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (Receptionist).



Dung Dinh
Primary Examiner
June 2, 2003